

Original Research Article

Assessment of pediatric cataract surgery outcome and complications

Théra JP¹, Hughes D², Tinley C², Bamani S³, Traoré L³, Traoré J³¹Pediatric Ophthalmologist and Forensic Medicine Doctor, Faculty of Medicine / Institute of African Tropical Ophthalmology, Bamako (Mali)²Pediatric Ophthalmologist, Consultant CCBRT Hospital, Dar Es Salam (Tanzania)³Professor, Department of Ophthalmology, Faculty of Medicine / Institute of African Tropical Ophthalmology, Bamako (Mali)

*Corresponding author

Dr. Japhet Pobanou THERA

Email: therajaphet@yahoo.fr

Abstract: Cataract is one of the major causes of curable blindness in children. Its treatment is mainly surgical with oftentimes complications and poor visual outcome. This study aimed to assess the outcome and complications of cataract surgery performed in children in a tertiary hospital.

Keywords: pediatric cataract, surgery, outcome, complications.

INTRODUCTION

Childhood cataracts are responsible for 5 to 20% of blindness in children worldwide and for an even higher percentage of childhood visual impairment in developing countries [1]. Childhood cataract blindness is one of the major avoidable causes of blindness in both developed and developing countries and it is a priority for VISION 2020: The right to sight initiative [2]. The prevalence of childhood cataract varies from 1.2 to 6.0 cases per 10,000 infants. Pediatric cataracts are responsible for more than one million cases of childhood blindness in Asia. In developing countries, such as India, 7.4 to 15.3% of childhood blindness is due to cataracts [3]. Of the 1.4 million blind children, globally, the number due to lens-related conditions is estimated to 190,000 (14%), with proportion varying in different countries [4]. Pediatric cataract surgery may result in preoperative and postoperative complications. Cataract surgery and other intraocular procedures have a higher incidence and more pronounced postoperative inflammatory reactions in children compared with adults [5]. The objective of our study was to assess the surgical outcome and the complications of pediatric cataract surgery in a tertiary hospital in Mali.

MATERIAL AND METHOD

We conducted a retrospective study covering one year from January 2015 to December 2015 in the Institute of African Tropical Ophthalmology located in Bamako, the Capital City of Mali. The inclusion criteria were children aged 0-15 years that underwent cataract surgery in the Institute during the period of study with the prior informed consent of their parents. A total of 72

patients were enrolled; all of them underwent small incision cataract surgery (SICS) with or without intraocular (IOL) implantation. Data analysis was done using SPSS 16 software.

RESULTS

82 eyes of 72 patients were involved. Among these patients, 71% (n=51) were males and 29% (n=21) were females with a sex ratio male: female=2.42. The age ranged from 0 to 15 years; Patients from the age group 0-5 years and the age group 11-15 years were prevalent with 35% (n=25) each one. Patients of the age group 6-10 years accounted for 30% (n=22). About the laterality, 60 were unilateral and 11 were bilateral.

Table 1: Etiology of cataract

Etiology of cataract	N	%
Congenital	30	42
Developmental	23	32
Traumatic	19	26
Total	72	100

Table 2: Age group distribution of patients

Age group (year)	N	%
0-5	25	35
6-10	22	30
11-15	25	35
Total	72	100

Table 3: Associated pathologies

Associated pathologies	N	%
Nystagmus	7	10
Strabismus	4	5
Corneal scarring	7	10

Table 4: Laterality of cataract

Laterality of cataract	N	%
Bilateral	28	39
Unilateral	44	61
Total	72	100

Table 5: Surgical procedure

Surgical procedure	N	%
SICS + IOL	59	81
SICS without IOL	14	19
Total	72	100

Table 6: Postoperative complications

Postoperative complications	N	%
Early complications		
Hyphema	1	1
Fibrinous reaction	8	11
Late complications		
Posterior capsule opacification	28	39
Aphakic/Pseudophakic glaucoma	3	4
Retinal detachment	1	1

Table 7: Best corrected postoperative visual acuity

Postoperative visual acuity	N	%
<6/60	2	3
6/60-6/24	22	30
≥6/18	25	35
Non recordable	23	32
Total	72	100

DISCUSSION

Our study which included 72 patients aged 0-15 years was challenging; since there were many hindrances. In our Institute, the Anesthetists do not accept to anesthetize children below 4 months old. Among the anesthetists, only one is able to manage children aged 4 months to 1 year old. In addition we did not have a vitrector; so in children who needed vitrectomy, we used a cystitome to perform posterior capsulotomy along with anterior manual vitrectomy. It was shown that good visual outcome is obtained if surgery is performed before 10 months of age [6]. Of the 72 patients, congenital cataract was prevalent, it accounted for 42% (n= 30) followed by developmental cataract, 32% (n=23). While congenital cataract is present at birth or noted in the first 2 years of life,

developmental cataract starts after 2 years of age. Pediatric cataract is the commonest cause of cataract in children [7]. 19 patients (26%) had traumatic cataract with corneal scarring in 10 of them. Corneal opacification contributes to worsen the outcome of cataract surgery. The predominance of congenital cataract in children was found by many researchers; In Madagascar, Randrianotahina found 53.5% of congenital cataract in his Study on pediatric cataract surgery and 25.6% of developmental [8]. 11 patients (15%) out of 72 had associated pathology; 7 cases of nystagmus and 4 cases of strabismus. Association of pediatric cataract with other eye pathologies was found by many authors [9, 7]. These eye conditions are harbingers of amblyopia before surgical procedure. Patients harboring such pathologies will oftentimes have poor surgical outcome. 61% (n=44) had unilateral cataract; this may be due to the fact that our study involved traumatic cataracts which are commonly unilateral. Patients with monocular cataract are more exposed to amblyopia; 2 predisposing factors play a big part in this process: binocular rivalry and visual deprivation. Early complications encompassed hyphema (1 case) and fibrinous reaction (8 cases). Late complications were mainly posterior capsular opacification and pseudophakic/aphakic glaucoma with respectively 39% (n=28) and 4% (n=3). In his study, Behbehani found 4% of aphakic glaucoma, 2% of posterior capsular opacification [10]. Postoperative corrected visual acuity was less than 6/60 in 2 patients, whereas 25 (35%) of our patients had a postoperative visual acuity ≥6/18. In his study, Khandekar found that the vision following surgery was more than 6/18 in 84 (16.4%) eyes; in 44% the vision could not be assessed [7]. The poor outcome in our study can be explained by the late attendance of health facilities by patients, the lack of appropriate surgical equipment like vitrector and phacoemulsification machine. In 23 (32%) of our patients, visual acuity was not recordable because of lack of cooperation from very young children. Many authors noticed the same problem of cooperation in their studies [11, 7]. Since the visual acuity of uncooperative children cannot be recorded, it is difficult to know if surgical outcome was satisfactory.

CONCLUSION

Pediatric cataract surgery is challenging; the late presentation of patients and the associated pathologies may compromise the outcome. Also follow up and visual acuity assessment are sometimes very tough.

REFERENCES

1. De Carvalho KM, Minguini N, Moreira Filho DC, Kara-José N; Characteristics of a pediatric low-vision population. *J Pediatr Ophthalmol Strabismus*, 1998; 35:162-165.
2. Thylefors B; A global initiative for the elimination of avoidable blindness. *Community Eye Health*, 1998; 11:1-3.

3. Vasavada AR, Vasavada SA, Bobrova N, Praveen MR, Shah SK, Vasavada VA, *et al.*; Outcomes of pediatric cataract surgery in anterior persistent fetal vasculature. *J Cataract Refract Surg*, 2011; 38:849-857.
4. WHO; preventing blindness in children: report of WHO/IAPB scientific meeting. Programme for prevention of blindness and deafness and International Agency for prevention of blindness. Geneva: WHO; 2000.
5. Rumelt S, Stolovich C, Segal ZI, Rehany U; Intraoperative enoxaparin minimizes inflammatory reaction after pediatric cataract surgery. *Am J Ophthalmol*, 2006; 141: 433-437.
6. Shrestha UD; Cataract surgery in children. *Nepal J Ophthalmol*, 2012; 4 (7):138-149.
7. Khandekar R, Sudhan A, Jain BK, Shrivastav K, Sachan R; Pediatric cataract and surgery outcomes in Central India: A hospital based study. *Indian J Med Sci*, 2007; 61:15-22.
8. Randrianotahina H, Nkumbe HE; Pediatric cataract surgery in Madagascar. *Niger J Clin Pract* 2014; 17:14-7.
9. Johar SR, Savalia NK, Vasavada AR, Gupta PD; Epidemiology based etiological study of pediatric cataract in Western India. *Indian J Med Sci*, 2004; 58:115-121.
10. Behbehani AH, Abdelmoaty SMA; The outcome of congenital cataract surgery in Kuwait SJO; 2011; 25: 295–299.
11. Nikhil R, Shubhi T, Anushree KA, Sudhir T, Madan D; Evaluation of visual outcomes after pediatric cataract surgery in a Tertiary Eye Care Hospital in Western Maharashtra. *J Clin Ophthalmol Res*, 2016; 4:13-18.